has not heretofore been described, so far as the writer is able to determine. It occurs chiefly in the middle and western portions of the United States and appears to be increasing from year to year in some localities. By actual count in a large number of commercial fields it affects from ten to twenty per cent. of the stand and thereby threatens to become a limiting factor in sugar-beet culture in some areas. It makes its appearance about mid-summer and is easily recognized by the following characteristic.

The leaves affected are mottled yellow and green. The spots are not always sharply defined, but usually shade into each other, giving the affected leaves a yellowish appearance. Frequently only a part of the leaves on the same beet are affected, at least during the early stages of the disease. The remaining leaves seem to be perfectly normal in color and growth. The leaves showing the disease symptoms vary in number from one to many on the same plant. They have shortened petioles, usually dwarfed and frequently thickened blades. The affected leaves, if numerous, generally occupy one side only of the beet crown and extend from the outer whorl on one side of the crown to or past the center. The normal leaves occupying the opposite side of the crown give to the beet top a one-sided appearance. Occasionally all the leaves of a mosaic beet show the characteristic symptoms mentioned above. This is generally the case at or near harvest time. The shortened petioles give the leaves a tufted appearance, as in the case of curly-top.

The root is dwarfed and often hairy, thereby further resembling curly-top. The affected beets usually persist until harvest time, but those attacked early in the season are too small to be of any commercial value. It is evident that the assimilative functions of the beet are seriously impaired, but the real cause of the disease is not yet known. As indicated above, there are several particulars in which the two diseases, curly-top and sugar-beet mosaic, are similar, but even though they are both frequently found in the same field, they are easily distinguished the one from the other. The writer has suggested sugar-beet mosaic as a tentative name for this disease. It is hoped that the investigations now under way will establish the real cause of the disease, enable us to find a practical remedy and suggest a more satisfactory name. C. O. Townsend

Delphinus and Phocæna in the Delaware

Occasionally cetaceans enter the Delaware and wander up into fresh water, though apparently not above tidal influence. On January 21, 1915, a dolphin (*Delphinus delphis*) was found at Riverton, New Jersey. It was about six feet in length. I examined it several days later, when the skeleton was shipped to Philadelphia, for the museum of the Academy. Though the dolphin has been taken in New York Harbor, and once at Ocean City in New Jersey in 1894, no other records of its occurrence in New Jersey limits have ever been given.

The harbor porpoise (*Phocæna phocæna*) has been credited with ascending various of the larger rivers of New Jersey, as well as the Delaware, though no actual identified specimens appear to have been noted. I only know of one, which was washed ashore above Bristol, Pennsylvania, during the summer of 1904. It had been floating about with the tides for some time previously, having been first located at Bordentown, New Jersey. It was a rather small specimen, and not preserved.

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Scientific Books

Guidebook of the Western United States: Part *A*, Northern Pacific Route, with a side trip to Yellowstone Park; Part *B*, Overland Route, with a side trip to Yellowstone Park; Part *C*, Santa Fe Route, with a side trip to Grand Canyon of the Colorado; Part *D*, Shasta Route and Coast Line; Bulletins 611, 612, 613, 614, respectively, United States Geological Survey. Washington, 1915.

The second of these is at hand and presumably is representative of the four in general

plan and make-up. The preface indicates their purpose in part as follows:

"The present stimulus given to travel in the home country will encourage many thousands of Americans to study geography at first hand. To make this study most profitable the traveler needs a handbook that will answer the questions that come to his mind so readily along the way. Furthermore, the aim of such a guide should be to stimulate the eye in the selection of the essentials in the scene that so rapidly unfolds itself in the crossing of the continent. In recognition of the opportunity afforded in 1915 to render service of this kind to an unusually large number of American citizens as well as to visitors from other countries, the United States Geological Survey has prepared a series of guidebooks covering four of the older railroad routes west of the Mississippi.

". . . The plan of the series is to present authoritative information that may enable the reader to realize adequately the scenic and material resources of the region he is traversing, to comprehend correctly the basis of its development, and above all to appreciate keenly the real value of the country he looks out upon, not as so many square miles of territory represented on the map in a railroad folder by meaningless spaces, but rather as land—real estate, if you please—varying widely in present appearance because differing largely in its history and characterized by even greater variation in values because possessing diversified natural resources. . . .

"Items of interest in civic development or references to significant epochs in the record of discovery and settlement may be interspersed with explanations of mountain and valley or statements of geologic history. . . .

"To this interpretation of our own country the United States Geological Survey brings the accumulated data of decades of pioneering investigation, and the present contribution is only one type of return to the public which has supported this scientific work under the federal government."

The volume is essentially a guide to what may be seen from the train windows. It is more especially devoted to geology and physiography and in the hands of any interested traveler should materially contribute to the value and pleasure of the trip; throughout it has been planned for readers with little or no geological training, yet it will be found exceedingly valuable by geologists who are traveling through the region and seeing as much as possible from the train window.

It consists of 244 pages, 49 plates of views and 25 maps which cover the route from Omaha to San Francisco and from Ogden to the boundary of Yellowstone Park. The maps are on a scale of about 8 miles to the inch; the country adjacent to the route is represented by contours with a 200-foot interval; all railroad stations are represented with their elevation and the miles are indicated by the crossties on the railroad line, every tenth being numbered. The geological formations are mapped, only the boundaries being given with a letter to indicate the member; in this way colors are avoided and the map is essentially a geographic one, not confusing to the traveler who is not geologically minded, but adequate to the geologist, with the help of the cross-sections given on many of the maps. The maps are so inserted in the text that they may be conveniently before the traveler while reading.

The text is a station-to-station itinerary. In it one finds much data on the population and history of towns, cost of railroad construction, on bridges, cuts and fills, location of early forts and settlements, history of mining camps and their production, discharge of streams and potential water power, irrigation, amounts of farm production, a random note on vegetation, archeology and fauna of Great Salt Lake. There is, however, more of geology and physiography than of these other topics. Large and numerous footnotes carry explanatory and supplementary data on the formations passed through and on their fossil contents, on the history of early settlers, battles with the Indians, the history of railroad building, etc. Much of this is popular in nature and for the traveler who is not scientifically trained.

While the description applies almost en-

tirely to the immediate route, notes are given on short side trips at two or three points. A list of 45 publications on the region and a glossary of geological terms are appended.

J. E. HYDE

WESTERN RESERVE UNIVERSITY

PROCEEDINGS OF THE NATIONAL ACADEMY OF SCIENCES (NUMBER 7)

THE seventh number of volume 1 of the *Proceedings of the National Academy of Sciences* contains the following articles:

1. *Nova Geminorum No. 2 as a Wolf-Rayet Star:* WALTER S. ADAMS and FRANCIS G. PEASE, Mount Wilson Solar Observatory, Carnegie Institution of Washington.

A continuous series of observations on Nova Geminorum No. 2 has shown the development of the spectrum of this star through the successive stages characteristic of novæ into one very strongly resembling that of planetary nebulæ; and then by the gradual elimination of the nebular lines and their replacement by Wolf-Rayet bands, into a spectrum identical with this characteristic type of stellar spectra.

2. *The Ruling and Performance of a Ten-inch Diffraction Grating:* A. A. MICHELSON, Ryerson Physical Laboratory, University of Chicago.

A ten-inch grating (actual ruled surface 9.4 inches by 28 inches) having a theoretical resolving power of about 660,000 shows an actual power of about 600,000. The method of obtaining exact ruling is also discussed.

3. *A Singular Dark Marking on the Sky:* E. E. BARNARD, Yerkes Observatory, University of Chicago.

From a dark object in Cepheus and those in Taurus the author gets the impression that the interstellar spaces are suffused with a feeble nebulosity and that the dark marks are due to the projection upon this background of nearer dark, opaque objects.

4. *A Highly Sensitive Electrometer:* A. L. PARSON, Chemical Laboratory, University of California.

The principle of working in a condition approaching instability is used to increase greatly the sensitiveness of electrometer and obtain an instrument theoretically sensitive enough to detect 10^{-6} volt (though unsteadiness makes it as yet impossible to detect an isolated potential-difference of less than 3×10^{-5} volt).

5. *The Distribution and Functions of Tribal Societies among the Plains Indians: A Preliminary Report:* CLARK WISSLER, American Museum of Natural History, New York.

Field-work conducted by the writer and his associates in the American Museum of Natural History leads to the conclusion that the societies have spread from tribe to tribe by culture diffusion of a desultory kind; that certain features of organization are traceable to particular tribes, and no one tribe can be the originator of the society as a whole.

6. *The Determination of Surface-Tension:* T. W. RICHARDS and L. B. COOMBS, Wolcott Gibbs Memorial Laboratory, Harvard University.

Attention is called to various sources of error in the measurement and in the calculation of surface-tension by the capillary-tube method, an improved form of this method is described, a new correction for the meniscus is proposed, and exact measurements with a number of liquids are presented.

7. *An Exhibit in Physical Anthropology:* ALES HRDLIČKA, Division of Physical Anthropology, U. S. National Museum, Washington.

The exhibits prepared under the direction of the author for the exposition at San Diego are described briefly to indicate their breadth, their permanent value, and their capability of forming the foundation of an anthropological center.

8. *The Compressibilities of the Elements and Their Relations to Other Properties:* T. W. RICHARDS, Wolcott Gibbs Memorial Laboratory, Harvard University.

This paper records all the recent work on the compressibility of the elements performed at Harvard, reduced to the best available standard—the newly determined compressibility of mercury. It is pointed out that the reciprocals of the melting points are very closely associated with the coefficients of expansion, and that